

REMARKS/ARGUMENTS

The Office Action of August 27, 2003, has been carefully considered.

It is noted that claims 1, 4, 5 and 7 are rejected under 35 U.S.C. §102(e) over the patent to Buxbaum '543.

Claims 2 and 3 are rejected under 35 U.S.C. §103(a) over Buxbaum '543 in view of Buxbaum '729.

Finally, it is noted that claim 6 is allowed.

In view of the Examiner's rejections of the claims, Applicant has amended independent claims 1 and 7, and added new independent claim 8.

It is respectfully submitted that the claims now on file differ essentially and in an unobvious, highly advantageous manner from the compositions and processes disclosed in the references.

Turning now to the references, and particularly to Buxbaum '543, it can be seen that this patent discloses an apparatus and methods for gas extraction. Buxbaum '543 does not disclose a hydrogen permeation membrane comprising a niobium alloy with 5-25 wt.% of at least one element from the group consisting of ruthenium, rhenium and rhodium, as recited in independent claim 1 presently on file.

Relative to claim 7, Buxbaum '543 does not disclose a fuel cell having a hydrogen permeation membrane produced as recited in the amended claim.

Relative to claim 4, with metal alloys, diffusion at room temperature simply does not occur. Any multi-layered membrane would soon be a homogenous alloy if this were the case. Buxbaum '543 does not disclose the process recited in claim 4.

In view of these considerations, it is respectfully submitted that the rejection of claims 1, 4, 5 and 7 under 35 U.S.C. §102(e) over the above-discussed reference is overcome and should be withdrawn.

The patent to Buxbaum '729 discloses a composite metal membrane for hydrogen extraction. The Examiner combined this reference with Buxbaum '543 in determining that claims 2 and 3 would be unpatentable over such a combination. Buxbaum '729 discloses Nb10 Hf1 Ti and Nb Zr1 as alloys for multi-layered membranes. The presently claimed invention is

only a single layer formed from an alloy homogenized by a diffusion process. Any teachings for multi-layered membranes do not apply nor provide any suggestions concerning a single-layer membrane. The combination of references does not teach or suggest adding Zr and Hf to the Nb material. The Ti-based alloy of Buxbaum '729 only possesses small amounts of Nb (10%) and 1% of Hf. This is not comparable to a Nb-based alloy which is understood in the art to have around 95% Nb. Furthermore, the combination of references does not teach or suggest Nb-Pd-Zr or Nb-Pd-Hf.

In view of these considerations it is respectfully submitted that the rejection of claims 2 and 3 under 35 U.S.C. §103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

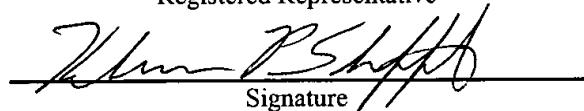
Reconsideration and allowance of the present application are respectfully requested. In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 29, 2003:

Respectfully submitted,

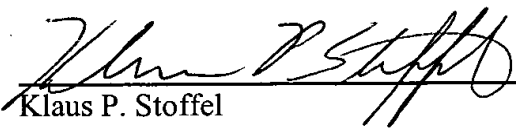
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Signature

December 29, 2003

Date of Signature


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